

**SUPERIOR**

14  
FE

# metal windows

**STEEL — — — ALUMINUM**

*Fentron*



Washington State Union Building—John W. Maloney, A.I.A. Architect.  
Phillip E. Keene, A.I.A. College Architect;

Standard and special  
windows, doors and  
hollow metal products.

*Trim-Set*



The Patented Package  
windows that costs no  
more than wood. Com-  
pletely assembled at  
factory—includes frame,  
sill, trim, glass and hard-  
ware. Five minutes in-  
stallation at job site.

**1952 EDITION**

**FENTRON STEEL WORKS, INC.**

**2801 MARKET STREET • SEATTLE 7, WASHINGTON**





## MEMBERS OF METAL WINDOW INSTITUTE

Fentron Steel Works, Inc., has manufactured metal windows and other building products since 1931. The Fentron slogan QUALITY—DEPENDABILITY—SERVICE has made possible the rapid growth of the company into one of the leading manufacturers on the Pacific Coast. Fentron Steel Works, Inc., employs 350 craftsmen and is the only plant on the Pacific Coast engaged in the manufacture of a complete line of steel and aluminum windows, doors, screens and hollow metal products.

In the past Fentron products have been used primarily on the Pacific Coast, Alaska, Hawaiian and Philippine Islands. Our large new plant permits the marketing of all our products in other areas and inquiries from architects, builders and dealers will receive prompt attention.

The Trim-Set Corporation is allied with the Fentron Steel Works, Inc., and markets the "Superior Trim-Set window." This window is ideal for housing construction and costs no more installed than wood. The patented outside trim as integral part of the frame permits factory glazing and installation time of five minutes. Trim-Set windows are made in awning, casement, sliding and louver type of steel and aluminum.

The Fentron Steel Works, Inc., has marketed for many years, in addition to the conventional casement window, an awning type residence window. The superior ventilation features have made this a popular window in housing construction on the Pacific Coast. For ventilating large glass areas Fentron has developed an efficient LOUVER WINDOW. The louver window has an attractive glazed ventilator with permanent bronze fly screen and provides ideal ventilation for picture windows. Louvers can be placed at the top, bottom or sides of windows. Louver windows are ideal for insulated glass and ventilators can be furnished insulated and weatherstripped.

All steel products including screen frames are Bonderized for rust protection. Baked enamel finishes of any color are available at slight additional cost. Aluminum products are alumilited for corrosion resistance.

Our screen department manufactures flat screens, wicket screens and storm windows. Screens and storm windows are available for other manufacturers' windows.

### PARTIAL LIST OF RECENT INSTALLATIONS

**Student Union Building, Washington**

State College of Washington  
Pullman, Washington  
John W. Maloney, Architect  
Browne-type steel folding and Aluminum Monumental windows

**Teaching Hospital—University of California**

San Francisco, California  
Milton T. Pflueger, Architect  
Series 20 Trim-Set Aluminum windows

**Chemistry Building—University of Hawaii**

Honolulu, T. H.  
Mark Potter, Architect  
Group operated steel windows  
Series 400—Hollow metal steel doors  
**Olympic Memorial Hospital**  
Port Angeles, Washington  
G. C. Field, Architect  
Series 10 Aluminum windows, sills, stools and heater covers. Aluminum entrances, stair railings, and letters

**National Bank of Commerce**

Wenatchee, Washington  
G. W. Stoddard, Architect  
Hollow metal Aluminum windows for insulating glass

**Junction School**

San Lorenzo, California  
Dragon, Schmidt & Hardman, Architects  
Series 10 Aluminum windows and mullions

**Territory of Hawaii Office Building**

Honolulu, T. H.  
Baver, Wimberly & Cook, Architects  
Series 10 Aluminum windows, Aluminum entrances, partitions and railings

**Ward Buildings, Rainier State School**

Buckley, Washington  
Naramore, Bain, Brady & Johanson, Architects  
Psychiatric Steel windows

**Magnolia Junior High Recreation Project**

Seattle, Washington  
J. Lister Holmes & Associates, Architects  
Series 10 Aluminum windows, Aluminum entrances, sun shades and louvers

**Animal Industries Building—Oregon State College**

Corvallis, Oregon  
Glenn Stanton, Architect  
Series 200 Steel windows, Aluminum and Steel hollow metal entrances, Aluminum glass block frames

**Vineland School—Bakersfield, California**

Wright, Metcalf & Parsons, Architects  
Series 400 Intermediate Steel windows

**Eugene Municipal Jail**

Eugene, Oregon  
Beardsworth, Architect  
Prison type super bar windows

**Alaska Office Building**

Juneau, Alaska  
Foss, Malcom & Olson, Architects  
Series 300 windows, weather stripped and prepared for insulating glass

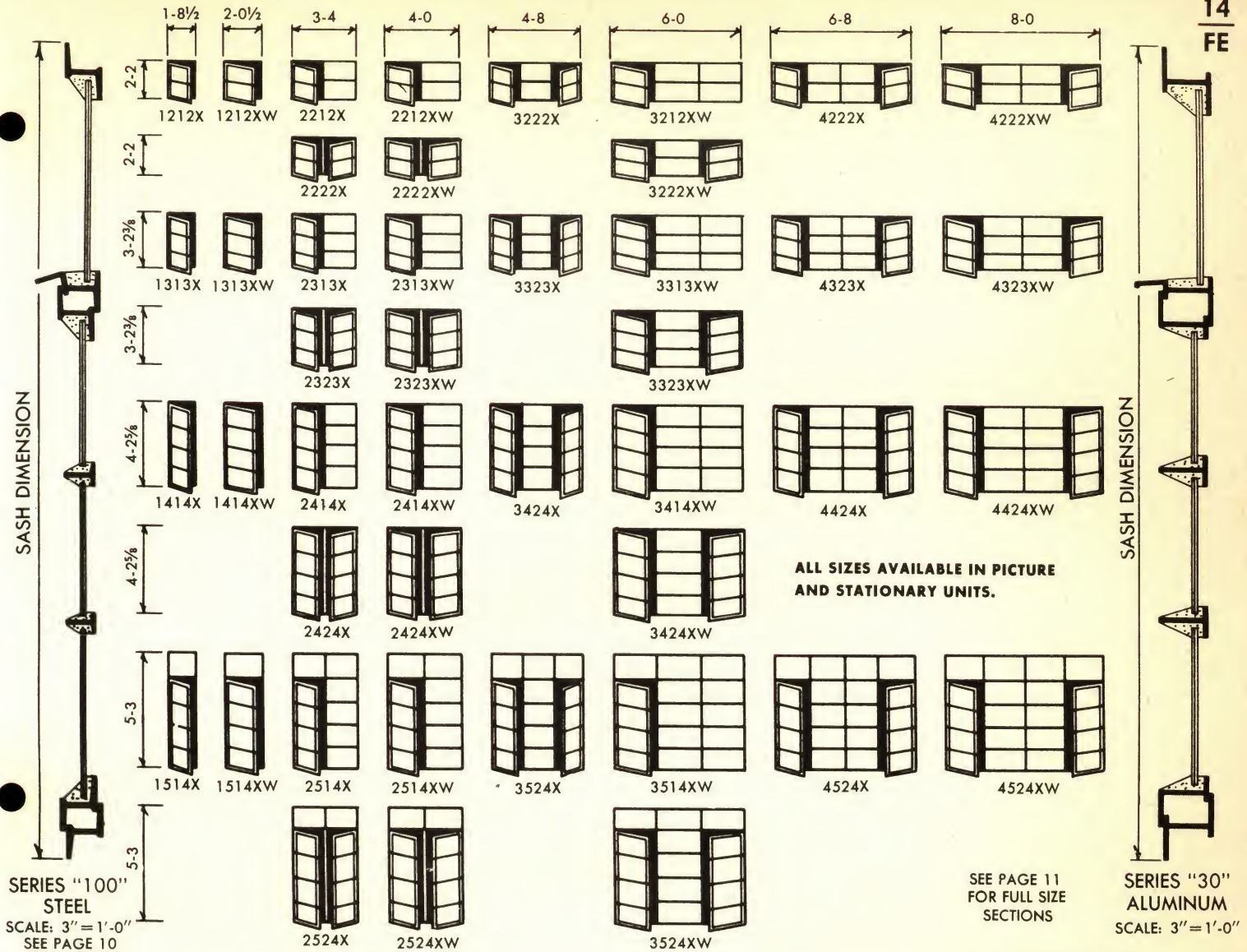
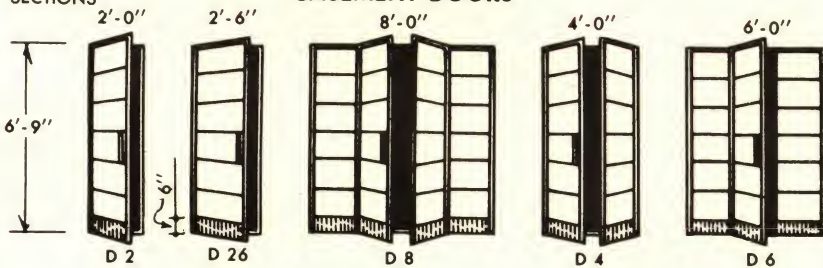
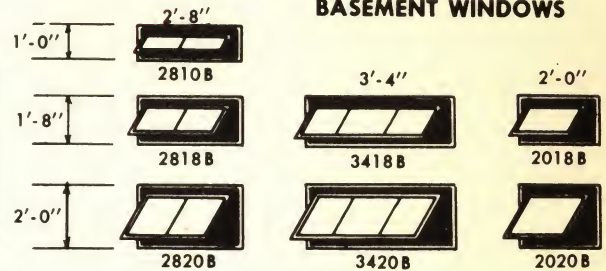
**Workmen's Compensation Board Office Building**

Vancouver, B. C.  
H. Whittaker, Architect  
Series 10 Aluminum windows and side cheeks

**National Public Service Insurance Co. Building**

Seattle, Washington  
Kenneth Ripley, Architect  
Series 20 Aluminum curtain window wall



**CASEMENT DOORS****BASEMENT WINDOWS****STEEL WINDOWS—SERIES 100**

**GENERAL.** Steel windows shall be Series 100 as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be low carbon, new billet hot rolled steel. Frame and vent sections shall be "Z" bars not less than 1 inch deep.

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be designed for outside putty glazing (specify inside putty if desired).

**VENTILATORS.** Hinged ventilators shall have hinges of substantial design with fibre washer spacers and friction adjustment and permit cleaning of windows from inside.

**HARDWARE.** All ventilators shall have solid bronze locking handles. (If underscreen hardware is desired specify: Windows shall be provided with underscreen operators and bronze underscreen locking handles).

**PAINTING.** Windows shall be Bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Metal screens shall be wicket type. Screens shall be rewirable and shall have half oval hinged wicket to permit opening of ventilators. Screen cloth shall be 16 mesh antique bronze finish.

**ALUMINUM WINDOWS—SERIES 30**

**GENERAL.** Aluminum windows shall be Series 30 as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum section of 63ST5 alloy and temper. Frame and vent section shall be "Z" bars not less than 1 1/4" deep.

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be designed for outside putty glazing (specify inside putty or bead glazing if desired).

**VENTILATORS.** Standard ventilators shall have hinges of substantial design with fibre washer spacers and friction adjustment and permit cleaning of windows from inside.

**HARDWARE.** All ventilators shall have solid bronze, satin finish locking handles. (If underscreen hardware is desired specify: Windows shall be provided with underscreen operators and bronze underscreen locking handles).

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure an alumilite finish resistant to corrosion.



**LOUVER WINDOWS STOCK SIZES**

TYPE	W	H
F-28 28L	2'-8"	2'-8"
F-28 34L	2'-8"	3'-4"
F-28 40L	2'-8"	4'-0"
F-28 54L	2'-8"	5'-4"
F-28 69L	2'-8"	6'-9"
F-34 28L	3'-4"	2'-8"
F-34 34L	3'-4"	3'-4"
F-34 40L	3'-4"	4'-0"
F-34 54L	3'-4"	5'-4"
F-34 69L	3'-4"	6'-9"
F-40 28L	4'-0"	2'-8"
F-40 34L	4'-0"	3'-4"
F-40 40L	4'-0"	4'-0"
F-40 54L	4'-0"	5'-4"
F-40 69L	4'-0"	6'-9"
F-60 28L	6'-0"	2'-8"
F-60 34L	6'-0"	3'-4"
F-60 40L	6'-0"	4'-0"
F-60 54L	6'-0"	5'-4"
F-60 69L	6'-0"	6'-9"
F-80 28L	8'-0"	2'-8"
F-80 34L	8'-0"	3'-4"
F-80 40L	8'-0"	4'-0"
F-80 54L	8'-0"	5'-4"
F-80 69L	8'-0"	6'-9"

**ALL SIZES AVAILABLE IN PICTURE AND STATIONARY UNITS.**

**1.** Louver windows are furnished with unglazed louver covers as standard.

**2.** Louver window widths 6'-0" and over are furnished with two covers.

**3.** Specify insulating glass preparation if desired. State glass thickness.

**4.** All windows 4'-0" or less in height shall have 8" high louvers—windows 5'-4" or more—12" louvers.

**SEE PAGE 10 FOR FULL SIZE SECTIONS**

**SEE PAGE 11 FOR FULL SIZE SECTIONS**

**SCALE: 3" = 1'-0"**

### STEEL LOUVER WINDOWS—SERIES 100

**GENERAL.** Steel windows shall be Series 100 louver type windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be low carbon new billet, hot rolled steel. The frame and vent section shall be not less than 1" deep. The louver shall be made of 16 ga. low carbon sheet steel, pickled and oiled quality.

**CONSTRUCTION.** Corners of frames and louver covers shall be mitered, butt welded with excessive welds removed. Intersecting meeting rails shall be tenon jointed to the frame and securely air hammer riveted. The louver shall be constructed as a separate part of the window and shall be removable from the outside for painting and replacement of screens. Windows shall be designed for outside putty glazing (specify inside or outside bead glazing if desired).

**LOUVER COVERS.** The louver covers shall be bottom hinged to open in, each cover shall be balanced on two (2) friction hinges welded to the frame and cover. Hinges shall have friction adjustment. If weather stripped (specify) louver cover shall have a rubber weather stripping around the entire bearing surface and when closed shall provide a weathertight installation.

**HARDWARE.** All louver covers shall have a solid bronze locking handle. Louver covers exceeding 3' in width shall have two (2) locking handles.

**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Provide a 16 mesh bronze wire screen in between louver and frame.

### ALUMINUM LOUVER WINDOWS—SERIES 30

**GENERAL.** Aluminum windows shall be Series 30 louver type windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum section of 63ST5 alloy and temper. Frame and meeting bars shall be not less than 1 1/4" deep. Louvers shall be made of 16 ga. sheet aluminum of 63ST5 alloy and temper.

**CONSTRUCTION.** Corners of frames and louver covers shall be mitered electrically, butt welded with excessive welds removed. Intersecting meeting rails shall be tenon jointed to frame and securely air hammer riveted. The louver shall be constructed as a separate part of the window and shall be removable from the outside for painting and replacement of screens. Windows shall be designed for outside putty glazing (specify inside or outside bead glazing if desired).

**LOUVER COVERS.** The louver covers shall be bottom hinged to open in, each cover shall be balanced on two (2) friction hinges welded to the frame and covers. Hinges shall have friction adjustment. If weatherstripped (specify) louver cover shall have a rubber weather stripping around the entire bearing surface and when closed shall provide a weathertight installation.

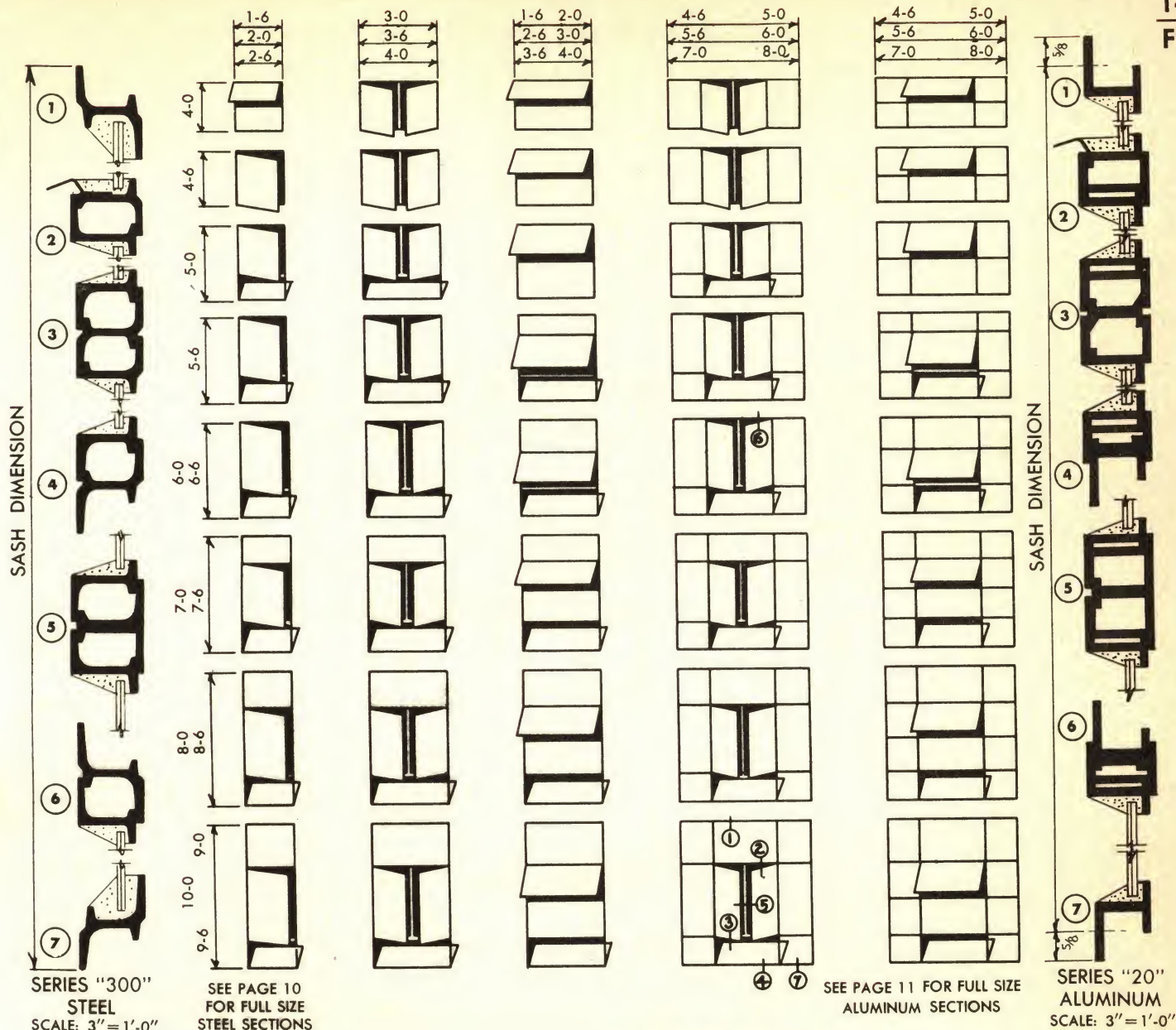
**HARDWARE.** All louver covers shall have a solid bronze satin finish locking handle. Louver covers exceeding 3' in width shall have two (2) locking handles.

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure an aluminite finish resistant to corrosion.

**SCREENS.** Provide a 16 mesh aluminum wire screen in between louver and frame.

**Fentron**



**STEEL WINDOWS****SERIES 100-200-300-400**

**GENERAL.** Steel windows shall be Office Type Series (specify 100-200-300-400) as manufactured by Fentron Steel Works, Inc., Seattle, Wn.

**MATERIAL.** Window members shall be low carbon, new billet hot rolled steel. Frame and vent sections shall be "Z" bars not less than (Series 100, 1"—Series 200, 1 1/4"—Series 300, 1 1/2"—Series 400, 1-7/16") deep.

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be designed for outside putty glazing (specify inside putty or bead glazing if desired).

**VENTILATORS.** Hinged ventilators shall have hinges of substantial design with fibre washer spacers and friction adjustment and permit cleaning of windows from inside. Projected ventilators shall be properly balanced on two (2) heavy steel arms with bronze bushing on bearing holes, riveted to vents and frames and bronze sliding shoes in tubular housing securely attached to ventilator bar. The sliding shoe housing shall have a set screw for easy adjustment of sliding mechanism. Balance and tension shall hold vents open in any position.

**HARDWARE.** All ventilators shall have solid bronze locking handles. Ventilators out of reach shall have hardware of solid bronze suitable for pole operation (if underscreen hardware is desired specify: Windows shall be provided with underscreen operators and bronze underscreen locking handles).

**PAINTING.** Windows shall be Bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Metal screens shall be wicket type. Screens shall be rewirable and shall have half oval hinged wicket to permit opening of ventilators. Screen cloth shall be 16 mesh antique bronze finish.

**ALUMINUM WINDOWS****SERIES 10-20-30**

**GENERAL.** Aluminum windows shall be Office Type Series (specify 10-20-30) as manufactured by Fentron Steel Works, Inc., Seattle, Wn.

**MATERIAL.** Window members shall be extruded aluminum section of 63ST5 alloy and temper. Frame and vent section shall be "Z" bars not less than (Series 10, 1 3/4"—Series 20, 1 1/2"—Series 30, 1 1/4") deep.

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. All ventilators exceeding 10 sq. ft. in area shall be constructed of tubular sections. Windows shall be designed for outside putty glazing (specify inside putty or bead glazing if desired).

**VENTILATORS.** Hinged ventilators shall have hinges of substantial design with fibre washer spacers and friction adjustment and permit cleaning of windows from inside. Projected ventilators shall be properly balanced on two (2) heavy aluminum arms riveted to vents and frames, with bearing end in tubular housing securely attached to ventilator bar. The sliding shoe housing shall have a set screw for easy adjustment of sliding mechanism. Balance and tension shall be prepared to hold vents open in any position. Friction shoes shall have adjustable tension.

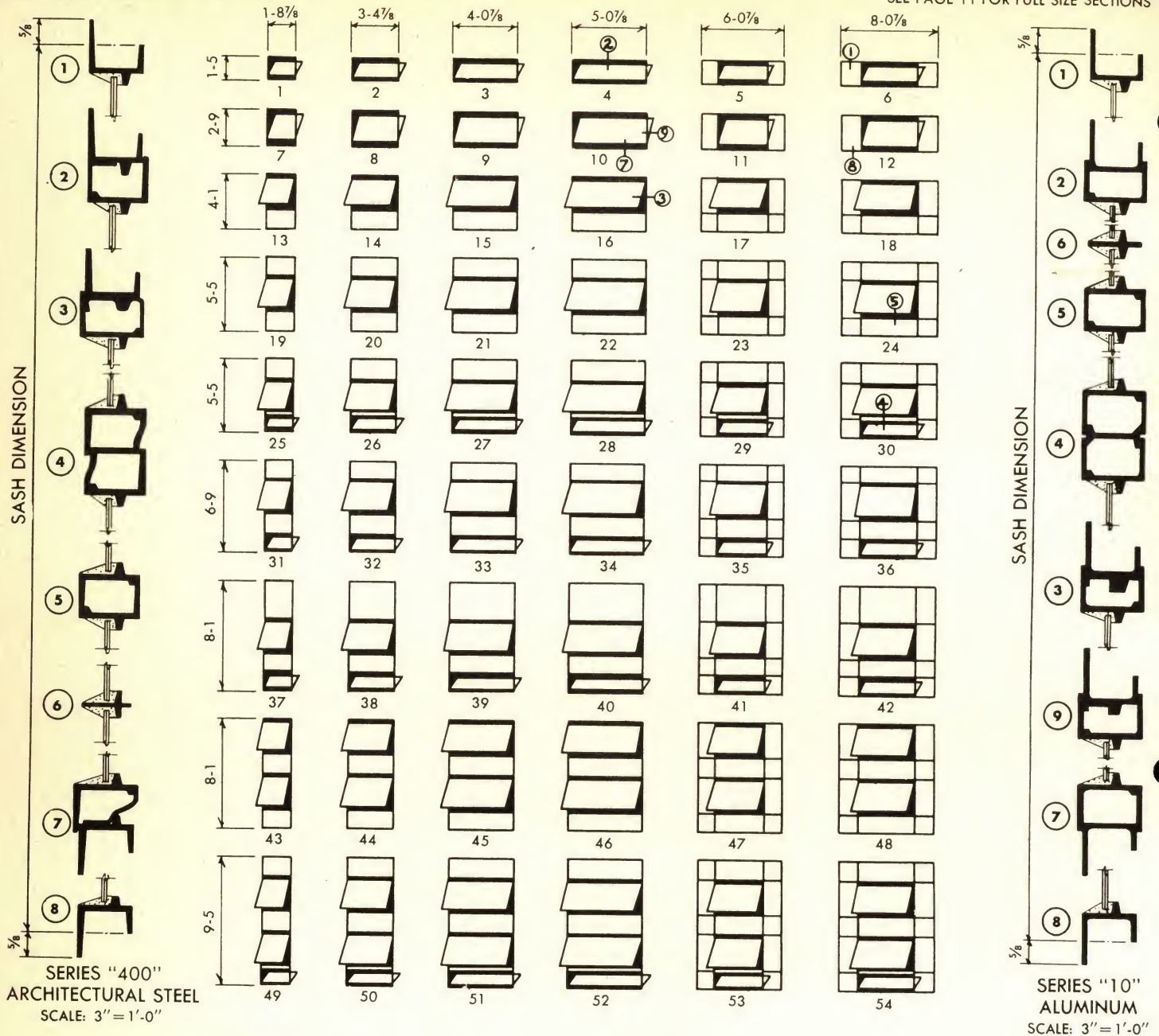
**HARDWARE.** All ventilators shall have solid bronze, satin finish locking handles. Ventilators out of reach shall have hardware of solid bronze, satin finish suitable for pole operation (if underscreen hardware is desired specify: Windows shall be provided with underscreen operators and bronze underscreen operators and bronze underscreen locking handles).

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure a satin alumilite finish resistant to corrosion.



SEE PAGE 10 FOR FULL SIZE SECTIONS

SEE PAGE 11 FOR FULL SIZE SECTIONS



### STEEL WINDOWS—SERIES 400

**General.** Steel windows shall be Series 400 architectural type windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be low carbon new billet, hot rolled steel. The frame and muntin bar section shall be not less than 1-7/16" deep. Ventilator sections shall not be less than 1-9/16" deep. The weight of the frame section shall not be less than 1 1/4 lbs. per in. ft. Weathering members shall not be less than 1/8".

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be designed for outside putty glazing (specify inside putty or bead glazing if desired).

**VENTILATORS.** Ventilators shall be projected type balanced on two (2) heavy steel arms with bronze bushing on bearing holes, riveted to vents and frames and bronze sliding shoes in tubular housing securely attached to ventilator bar. The sliding shoe housing shall have a set screw for adjustment of sliding mechanism.

**HARDWARE.** All ventilators shall have solid bronze locking handles. Ventilators out of reach shall have hardware of solid bronze suitable for pole operation (if underscreen hardware is desired, specify; windows shall be provided with underscreen operators and bronze underscreen locking handles).

**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Metal screens shall be wicket type. Screens shall be rewirable and shall have half oval hinged wicket to permit opening of ventilators. Screen cloth shall be 16 mesh antique bronze finish.

### ALUMINUM WINDOWS—SERIES 10

**GENERAL.** Aluminum windows shall be Series 10 architectural type windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum sections of 635T5 alloy and temper. The frame section shall be not less than 1 3/8" deep with weight not less than .55 lbs. per in. ft. The ventilator sections shall be not less than 1 1/2" deep.

**CONSTRUCTION.** Corners of frames and vents shall be mitered and electrically butt welded with exposed surfaces ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. All ventilators exceeding 10 sq. ft. in area shall be constructed of tubular sections. Windows shall be designed for outside putty glazing (specify inside putty or bead glazing if desired).

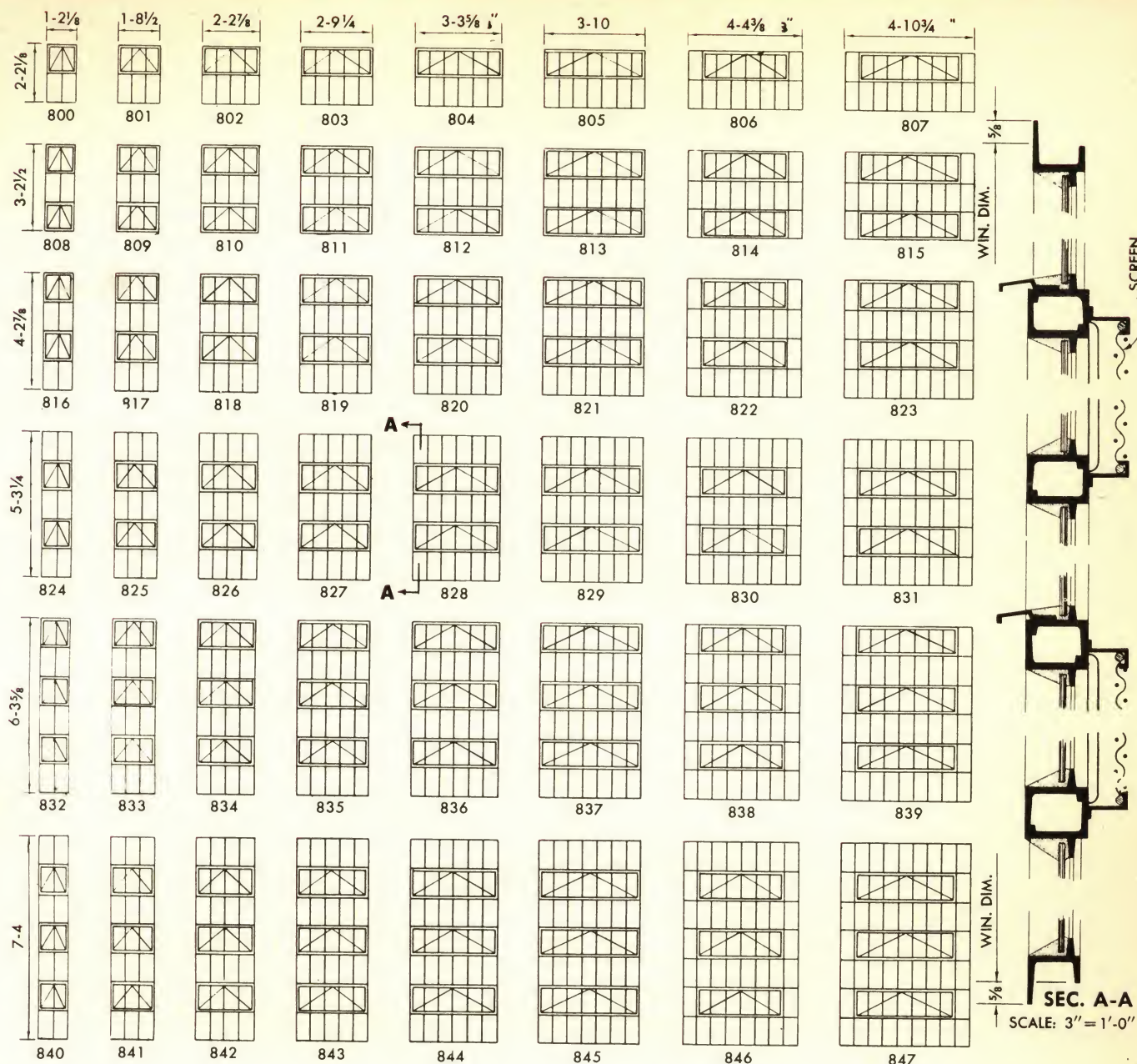
**VENTILATORS.** Ventilators shall be projected type balanced on two (2) heavy aluminum arms riveted to vents and frames, and fibre sliding shoes in tubular housing securely attached to ventilator bar. The sliding shoe housing shall have a set screw for adjustment of sliding mechanism.

**HARDWARE.** All ventilators shall have solid bronze, satin finish locking handles. Ventilators out of reach shall have hardware of solid bronze, satin finish suitable for pole operation (if underscreen hardware is desired specify; Windows shall be provided with underscreen operators and bronze underscreen locking handles).

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure a satin aluminite finish resistant to corrosion.

**SCREENS.** Provide 16 mesh aluminum wire screen.



**STEEL**

**GENERAL.** Windows shall be psychiatric type as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be low carbon new billet hot rolled steel. The depth of the section shall not be less than 1-7/16".

**CONSTRUCTION.** Windows shall be constructed of a frame with 6" x 12" glass lights and ventilators an integral part of the windows. The corner of frames and ventilators shall be butt welded and ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be prepared for outside putty glazing (specify inside or angle glazing if required). The ventilated section shall have 1/4" by 3/4" guard bars directly back of muntin bars and securely welded to frame.

**VENTILATORS.** Ventilators shall be top hinged to open out and shall have two heavy friction hinges welded to the frame and ventilators. The friction of the hinges shall be adjustable.

**HARDWARE.** Ventilators shall be equipped with a strong statuary bronze handle that will draw the ventilator tight when closed. Hardware shall have a smooth satin finish.

**PAINTING.** Windows shall be Bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Screens shall be provided for all ventilating units of windows and shall be constructed of an angle frame with 16 mesh, antique finish bronze cloth. The screens shall be top hinged and shall have two bronze locking devices on the two bottom corners.

**ALUMINUM**

**GENERAL.** Windows shall be psychiatric type as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum sections of 63ST5 alloy and temper. The depth of the section shall be not less than 1 3/8".

**CONSTRUCTION.** Windows shall be constructed of a frame with 6" x 12" glass lights and ventilators on integral part of the windows. Corner of the frames and ventilators shall be butt welded and ground smooth. Intersecting meeting rails and muntin bars shall be tenon jointed to the frame and securely air hammer riveted. Windows shall be prepared for outside putty glazing (specify inside or angle glazing if required). The ventilated section shall have 1/4" by 3/4" guard bars directly back of muntin bars and securely welded to frame.

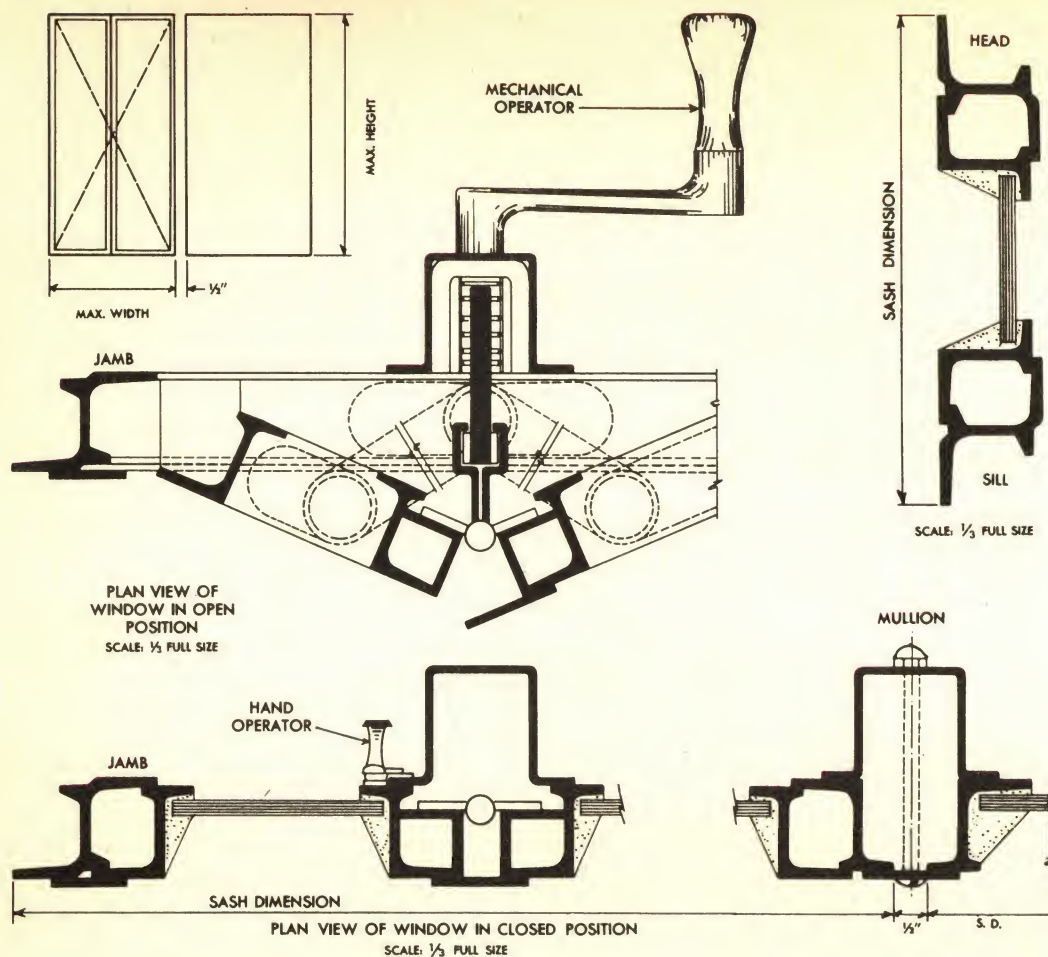
**VENTILATORS.** Ventilators shall be top hinged to open out and shall have two heavy friction hinges welded to the frame and ventilators. The friction of the hinges shall be adjustable.

**HARDWARE.** Ventilators shall be equipped with a strong statuary bronze handle that will draw the ventilator tight when closed. Hardware shall have a smooth satin finish.

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure a satin aluminite finish resistant to corrosion.

**SCREENS.** Aluminum screens shall be provided for all ventilating units of windows and shall be constructed of an angle frame with 16 mesh aluminum cloth. The screens shall be top hinged and shall have two bronze locking devices on the two bottom corners.





**DESCRIPTION.** Browne-type Folding Windows are available in Series 300 Steel and Series 20 Aluminum with ventilators of tubular design. The Fentron Browne-type Folding Windows incorporate such new features as sliding spring action shoes at the jamb; double  $\frac{1}{4}$ " contact; friction adjustment of sliding hinges and mechanical operators. The strength of steel makes it possible to construct

single vents up to 3' x 7' Aluminum vents 3'0 x 6'. The Browne-type Folding Windows can be used as a conventional appearing detention window by specifying a tool proof operator arm and removable crank handle. Full size detail and other information available upon request.

## STEEL WINDOWS

**GENERAL.** Windows shall be Series 300 Browne-type Folding windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be heavy casement type of low carbon, new billet hot rolled steel. The sections shall not be less than  $1\frac{1}{2}$ " deep.

**CONSTRUCTION.** Windows shall be constructed of a frame with two ventilators as an integral part of the window. The corner of the frames and ventilators shall be butt welded and ground smooth. All horizontal and vertical meeting rails and muntin bars shall be tenon jointed and securely welded to the frames. Windows shall have continuous glazing bead. (Windows shall be putty glazed).

**VENTILATORS.** Each window shall have two (2) vertical sliding ventilators that open outward simultaneously. Ventilators shall have two point continuous contact, not less than  $\frac{1}{4}$ ". The simultaneous outward opening of the ventilators shall be obtained by the use of a sliding mechanism. Each sliding vent shall be balanced with two (2) concealed heavy supporting arms riveted to frames and vents. All bearing holes shall have bronze or stainless steel bushings. Uniform tension to hold ventilators in any open position shall be obtained by use of two sliding shoes of bronze with compression springs enclosed in steel housing. The steel housing shall have an adjusting screw to permit friction adjustment of the ventilators. The two ventilators shall be connected with a piano hinge,  $1\frac{3}{4}$ " wide, with bronze pin. It shall be continuous from top to bottom and fastened to ventilator members 8" on center.

**HARDWARE.** Hand operated ventilators shall be equipped with a strong statutory bronze handle that will draw the ventilator tight when closed. Hardware shall have a smooth satin finish. Mechanically operated ventilators shall be opened and closed with a mechanical operator concealed in the vertical mullion channel. The actuating arm of the operator shall open and close the ventilators and hold them in any desired position. Mechanical operators shall have a heavy integral bronze worm gear with  $\frac{3}{16}$  x 1" steel sliding arm. The crank handle for the operator shall be of solid bronze and conveniently placed within reach of the floor.

**SCREENS.** Screens shall be designed to permit the opening and closing of ventilators without removing screens. Screen frames shall be re-wireable and shall be bonderized and painted. Screen cloth shall be 16 mesh, antique bronze finish.

**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

## ALUMINUM WINDOWS

**GENERAL.** Windows shall be Series 20 Browne-type Folding Windows as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum sections of 635T5 alloy and temper. The frame section shall not be less than  $1\frac{3}{8}$ " deep. Ventilator sections shall not be less than  $1\frac{1}{2}$ " deep of tubular design.

**CONSTRUCTION.** Windows shall be constructed of a frame with two ventilators as an integral part of the window. The corner of the frames and ventilators shall be butt welded and ground smooth. All horizontal and vertical meeting rails and muntin bars shall be tenon jointed and securely welded to the frames. Windows shall have a continuous glazing bead. (Windows shall be putty glazed).

**VENTILATORS.** Each window shall have two (2) vertical sliding ventilators that open outward simultaneously. Ventilators shall have two point continuous contact, not less than  $\frac{1}{4}$ ". The simultaneous outward opening of the ventilators shall be obtained by the use of a sliding mechanism. Each sliding vent shall be balanced with two concealed heavy supporting arms riveted to frames and vents. All bearing holes shall have bronze or stainless steel bushings. Uniform tension to hold ventilators in any open position shall be obtained by use of two sliding shoes of fibre and stainless steel with compression springs enclosed in aluminum housing. The aluminum housing shall have an adjusting screw to permit friction adjustment of the ventilators. The two ventilators shall be connected with a piano hinge,  $1\frac{3}{4}$ " wide, with bronze pin. It shall be continuous from top to bottom and fastened to ventilator members 8" on center.

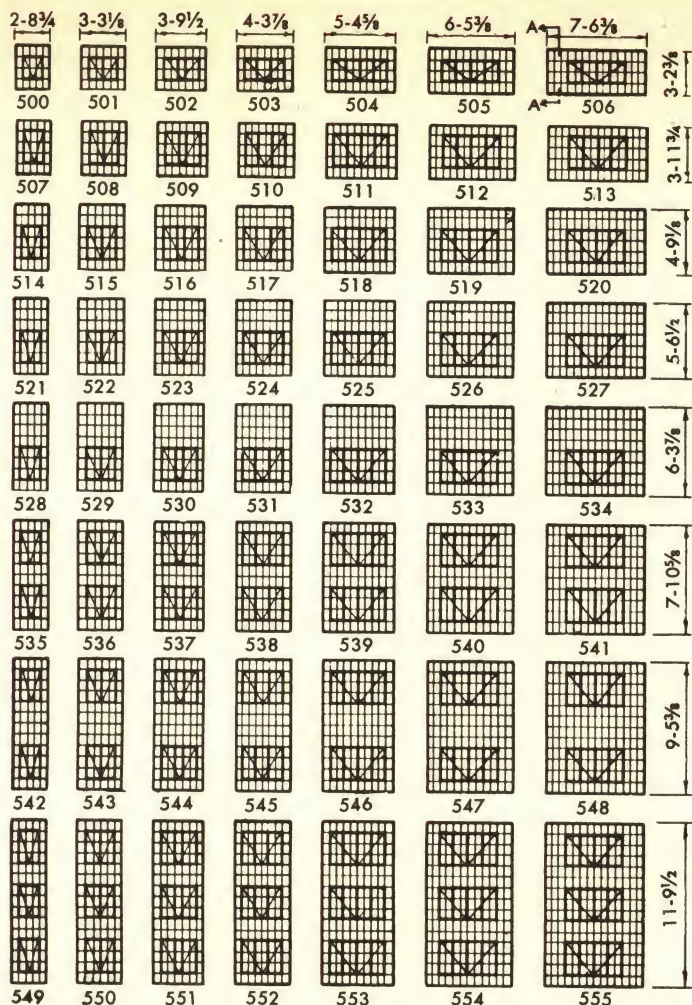
**HARDWARE.** Hand operated ventilators shall be equipped with a strong statutory bronze handle that will draw the ventilator tight when closed. Hardware shall have a smooth satin finish.

Mechanically operated ventilators shall be opened and closed with a mechanical operator concealed in the vertical mullion channel. The actuating arm of the operator shall open and close the ventilators and hold them in any desired position. Mechanical operators shall have a heavy integral bronze worm gear with  $\frac{3}{16}$  x 1" stainless steel sliding arm. The crank handle for the operator shall be of solid bronze and conveniently placed within reach of the floor.

**SCREENS.** Shall be designed to permit opening and closing of ventilators without removing screens. Screen frames shall be aluminum re-wireable type; screen cloth 16 mesh aluminum.

**FINISH.** After assembly windows and screens shall receive an Anodic treatment to secure satin aluminite finish resistant to corrosion.





The Fentron super bar prison type windows have been developed to provide maximum protection and incorporate all the latest features on prison windows. All hardware is of substantial design and is either solidly welded to the windows or fastened with special screws removable only with special key. Windows can be furnished with hardened steel inserts preventing sawing of window bars. Fentron prison type windows have been installed, and have provided satisfactory performance, for many years in Federal, State and Municipal institutions.

### SUPER BAR STEEL WINDOWS

**GENERAL.** Windows shall be Fentron super bar prison type as manufactured by Fentron Steel Works, Inc., Seattle, Washington.

**MATERIAL.** Window members shall be low carbon, new billet, hot rolled steel. Frame and muntin sections shall not be less than 1 3/4\" deep. Fixed grille frame sections shall weigh not less than 3 lbs. per in. ft. and muntin bars not less than 2 lbs. per in. ft. Ventilator and frame sections shall be not less than 1-9/16\" deep. Frame and vent section combined shall weigh not less than 3 lbs. per in. ft. Muntins shall be 3/4 x 1-7/16\" rolled steel bars.

**CONSTRUCTION.** Fixed grille section shall extend continuously from head to sill and jamb to jamb. Frame corners shall be coped, tenoned and air hammer riveted. Muntins at cross joints shall be interlocked, coped and riveted into frame sections. In addition to riveting all joints shall be solidly welded. Frame and vent members shall be electrically welded at corners with excessive welds ground smooth. When closed ventilator shall provide a 1/4\" contact around the entire

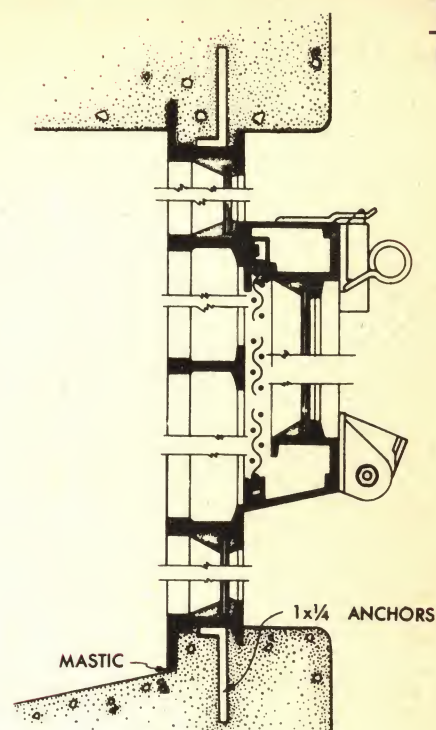
perimeter of the frame. Grilles and vents shall be designed for outside putty glazing.

**VENTILATORS.** Shall be bottom hinged to open in. Ventilators shall have two heavy friction hinges with limit stop solidly welded to frame and ventilator. Ventilator shall be securely welded to the inside of the frame with continuous weld at the sill to provide a water tight installation. (Alternate, fixed frames shall be fastened to fixed grille by clips attached from outside with socket head bolts).

**HARDWARE.** Ventilators shall have solid bronze snap lock attached to the ventilator with special screws removable only with special key.

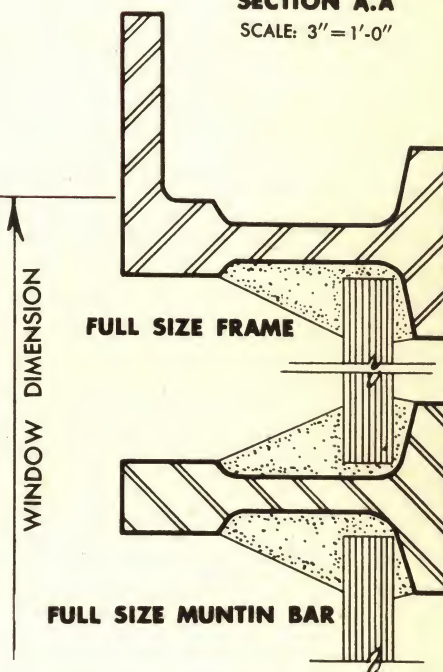
**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint baked in infra-red oven before shipment.

**SCREENS.** Screens shall be designed to fit between ventilator and fixed grilles. Frames shall be of cold rolled steel with 16 mesh antique finish bronze cloth (specify mesh and thickness of secondary wire if desired).



SECTION A.A.

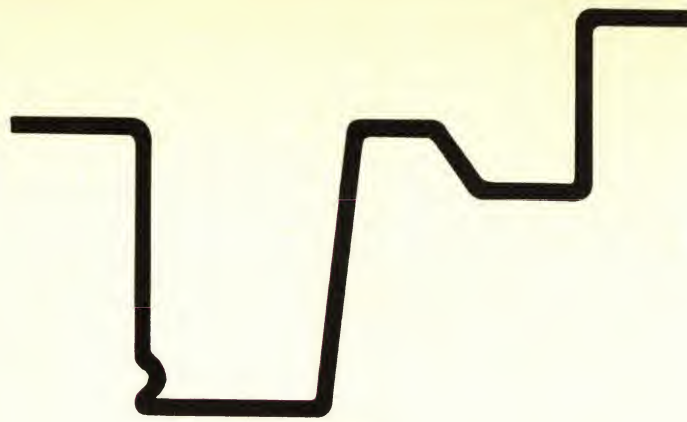
SCALE: 3\" = 1'-0\"







SERIES "100"



TRIM-SET "T"



SERIES "200"



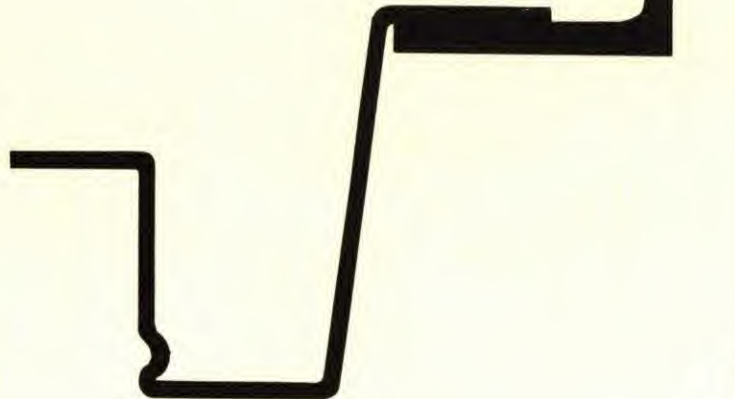
SERIES "300"



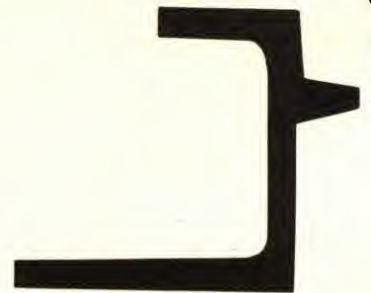
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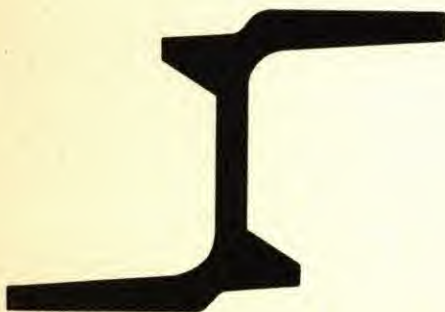
SERIES "300"



TRIM-SET "T" TRIM  
APPLIED TO  
SERIES 400 FRAME



SERIES "400"



SERIES "300"



TRIM-SET "Z"

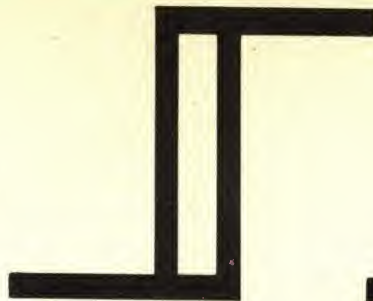


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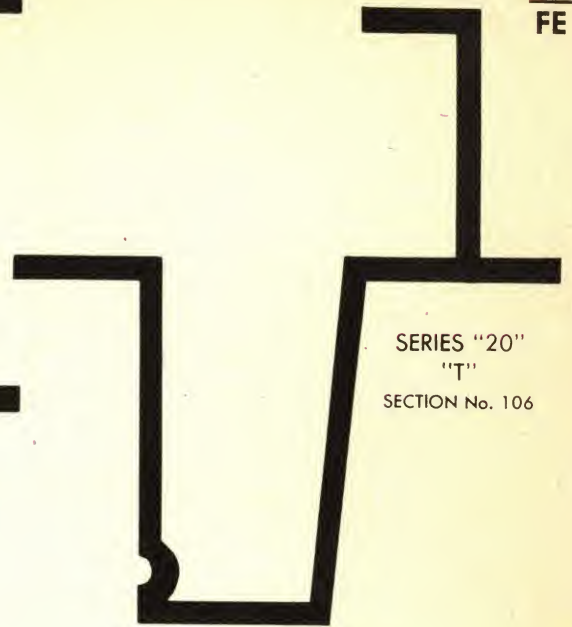




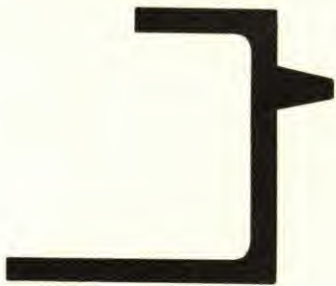
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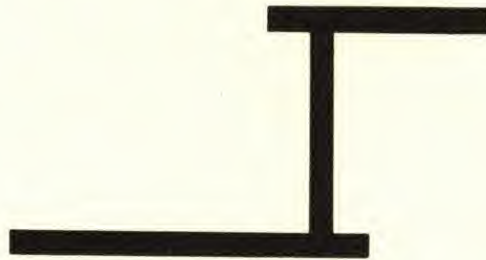
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SECTION No. 1 SP



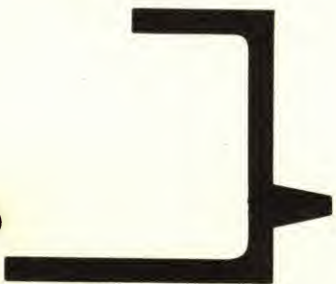
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"T"  
SECTION No. 106



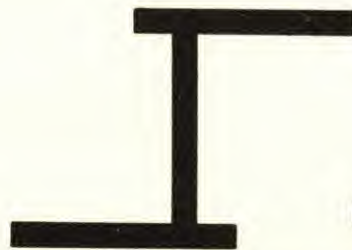
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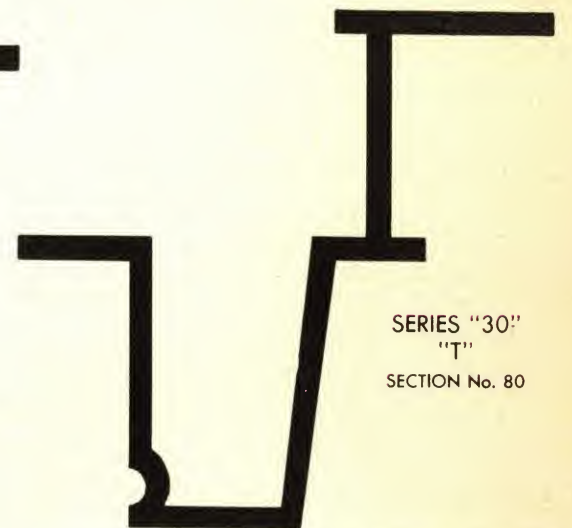
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SECTION No. 96



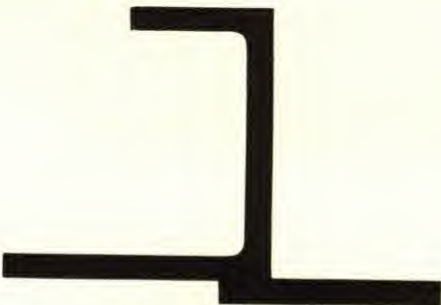
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SECTION No. 14



SERIES "30"  
SECTION No. 74



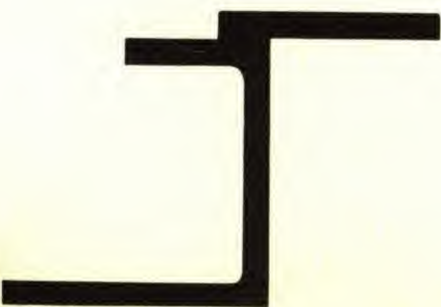
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"T"  
SECTION No. 80



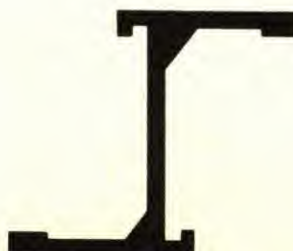
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SECTION No. 16



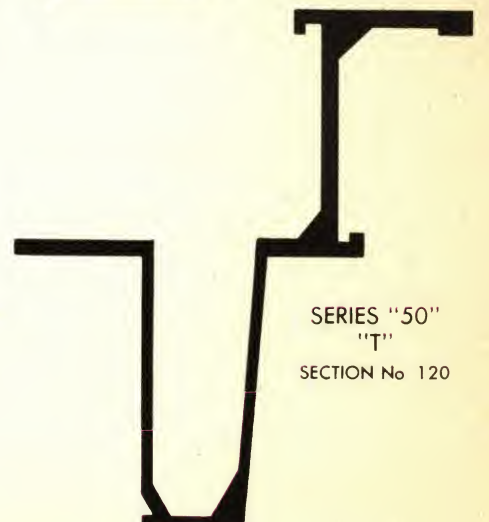
SERIES "40"  
SECTION No. 1



SERIES "10"  
SECTION No. 15

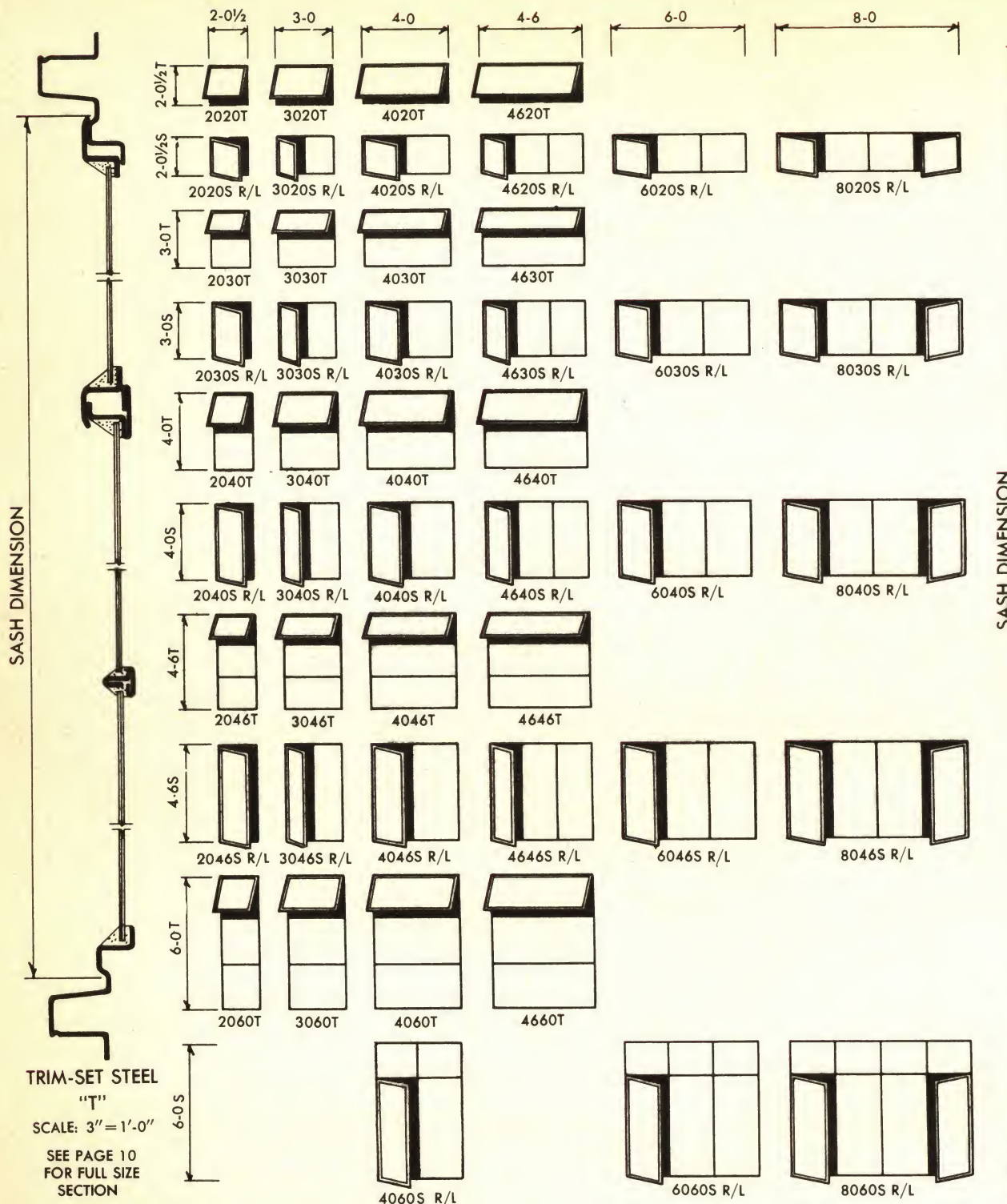


SERIES "50"  
SECTION No. 119



SERIES "50"  
"T"  
SECTION No. 120





### TRIM-SET STEEL WINDOWS

Windows shall be Trim-Set steel windows as manufactured by the "Trim-Set" Corporation of Seattle, Washington.

Frames shall be mitered, butt welded and ground smooth. Trim and sill shall be an integral part of the frame. All meeting rails and muntin bars shall be securely welded to frame section. Sill members shall have drip groove rolled as integral part of frame.

Ventilators shall have two point contact. Ventilators shall have friction hinges and bronze locking handles.

Windows shall be "Bonderized" after fabrication and receive one coat of gray chromate paint.

All windows shall be outside putty glazed at factory with SS8 quality glass unless otherwise specified.

Metal screens shall be of wicket type. Screen cloth shall be 16 mesh antique bronze finish.

**CONDENSATION GUTTERS** and metal inside casing if specified.

### TRIM-SET ALUMINUM WINDOWS

Windows shall be Trim-Set extruded aluminum windows as manufactured by the Trim-Set Corporation of Seattle. Alloy and temper shall be 63ST 5.

All corners of frame and ventilators shall be mitered and butt welded. Intersecting meeting rails and muntin bars shall be tenon jointed to frame and securely riveted. Sill members shall have drip groove extruded as integral part of frame.

Grooves to key-in putty shall be an integral part of frame and vent members.

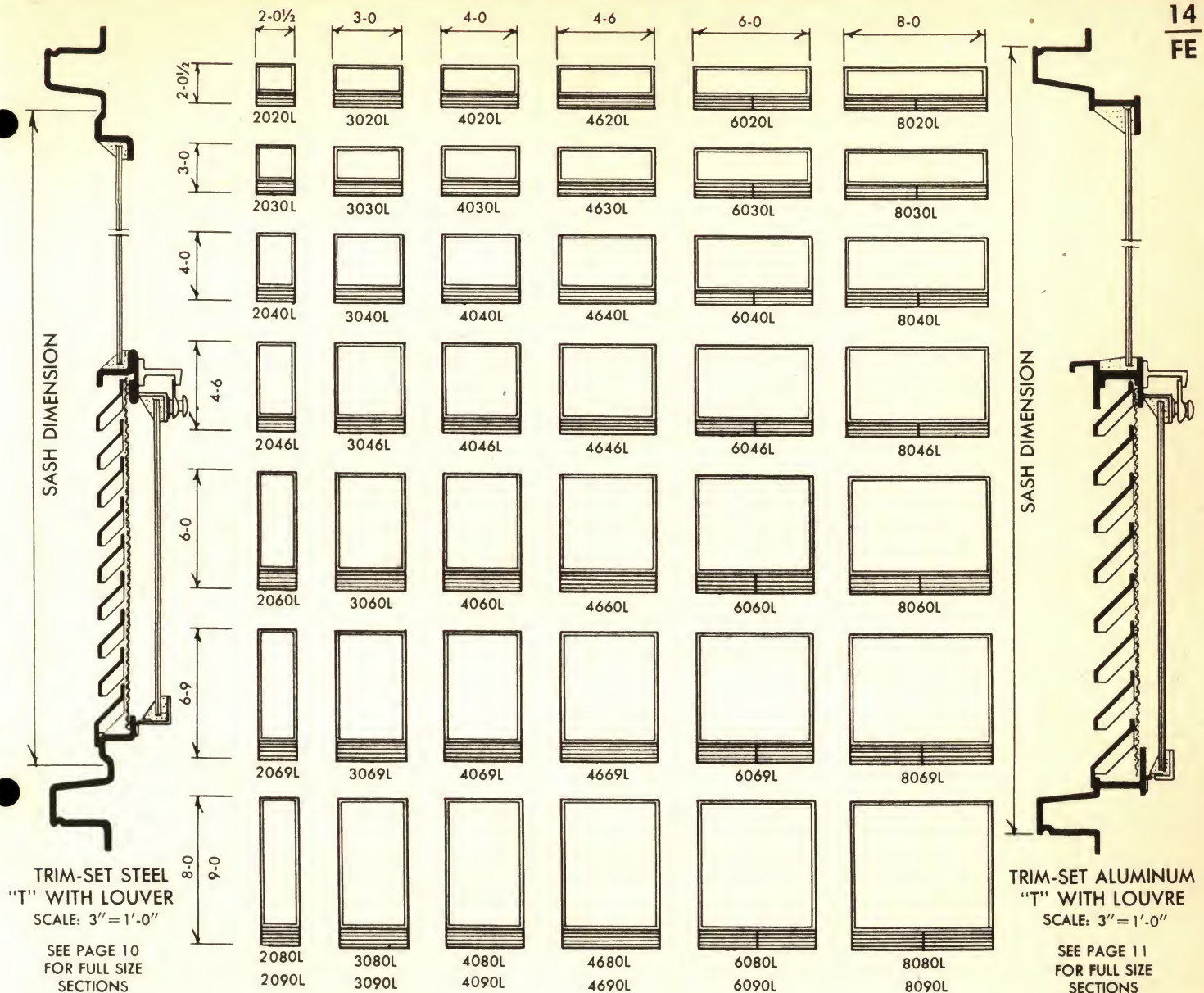
Ventilators shall be fabricated from 1 1/4" extruded sections. Ventilators shall have friction hinges and bronze locking handles.

Screen shall be of wicket type with aluminum frame and 16 mesh aluminum cloth.

All windows shall receive a corrosion resistant "Alumilite" finish after fabrication, as follows:

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure a satin alumilite finish resistant to corrosion.





**DESCRIPTION.** Louver type windows can be furnished with crystal, plate or insulating glass,  $\frac{1}{2}$ ",  $\frac{3}{4}$ ", and 1". Refer to manufacturer's catalog for maximum size of insulating glass. Horizontal and vertical muntin bars can be added, and windows glazed with SSB glass. Windows have an 8" louver on sizes up to 4'6" in height and 12" louver on sizes over 4'6". (LOUVER HEIGHTS MAY BE INCREASED TO SUIT VENTILATION REQUIREMENTS).

### TRIM-SET STEEL LOUVER WINDOWS

**GENERAL.** Windows shall be steel louver type windows as manufactured by Trim-Set Corporation Seattle, Washington.

**MATERIAL.** Window members and louvers shall be formed of low carbon, cold rolled steel.

**CONSTRUCTION.** Corners of frames shall be mitered, butt welded with excessive welds removed. Intersecting meeting rails shall be tenon jointed to frame and securely welded. Trim and sill shall be an integral part of the frame. Sill members shall have a drip groove as integral part of frame. The louver shall be constructed as a separate part of the window and shall be removable from the outside for painting and replacement of screens. Windows shall be designed for outside putty glazing (specify inside or outside bead glazing if desired).

**LOUVER COVERS.** The louver covers shall be bottom hinged to open in, each cover shall be balanced on two (2) friction hinges welded to the frame and cover. Hinges shall have friction adjustment. If weatherstripped (specify) louver covers shall have a rubber weatherstripping around the entire bearing surface and when closed shall provide a weather tight installation.

**HARDWARE.** All louver covers shall have a solid bronze locking handle. Louver covers exceeding 3' in width shall have two (2) locking handles.

**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint baked in infra red oven before shipment.

**SCREENS.** Provide a 16 mesh bronze wire screen in between louver and frame.

Louvers are equipped with a glazed cover on the inside, bottom hinged, and provided with a limit stop. Bronze fly screen is furnished as standard on all louvers. These windows can be furnished in special types and sizes, with vents and louvers omitted, or louvers placed at the top, or louvers for the entire opening.

Louver windows are available in steel or aluminum.

### TRIM-SET ALUMINUM LOUVER WINDOWS

**GENERAL.** Windows shall be louver type windows as manufactured by Trim-Set Corporation, Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum sections of 63ST5 alloy and temper. Frame and meeting bars shall be not less than  $\frac{1}{4}$ " deep. Louvers shall be made of 16 ga. sheet aluminum of 63ST5 alloy and temper.

**CONSTRUCTION.** Corners of frames shall be mitered, butt welded with excessive welds removed. Intersecting meeting rails shall be tenon jointed to frame and securely air hammer riveted. Trim and sill shall be an integral part of the frame. The louver shall be constructed as a separate part of the window and shall be removable from the outside for painting and replacement of screens. Windows shall be designed for outside putty glazing (specify inside or outside bead glazing if desired).

**LOUVER COVERS.** The louver covers shall be bottom hinged to open in, each cover shall be balanced on two (2) friction hinges welded to the frame and cover. Hinges shall have friction adjustment. If weatherstripped (specify) louver covers shall have a rubber weatherstripping around the entire bearing surface and when closed shall provide a weather tight installation.

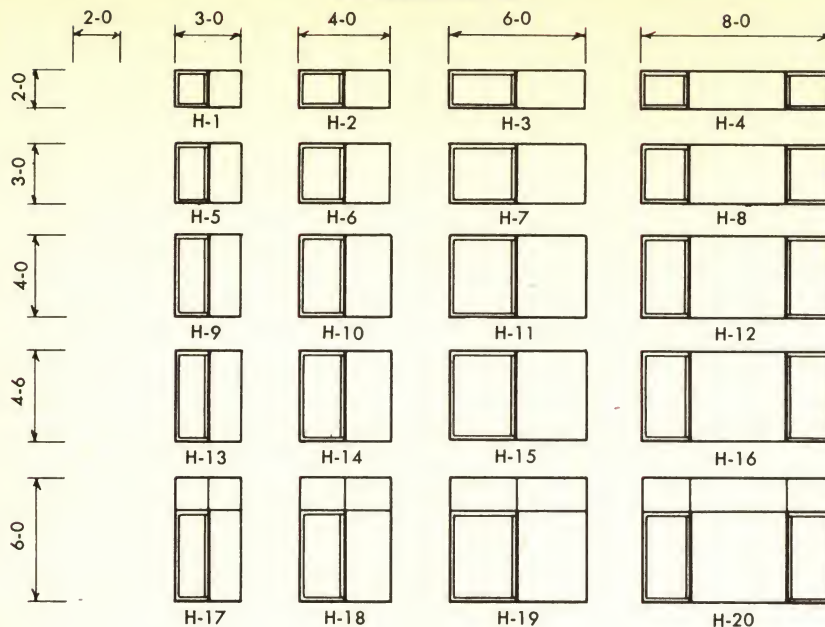
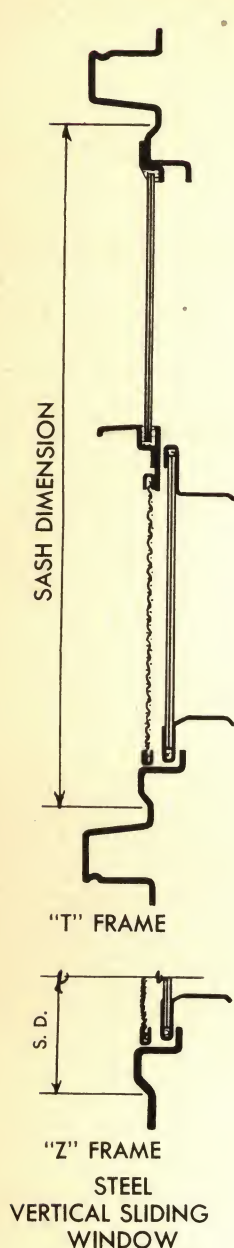
**HARDWARE.** All louver covers shall have a solid bronze satin finish locking handle. Louver covers exceeding 3' in width shall have two (2) locking handles.

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure an aluminite finish resistant to corrosion.

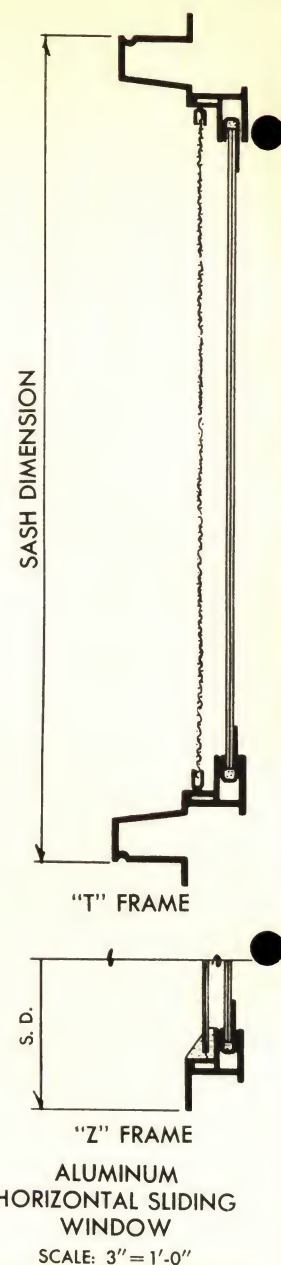
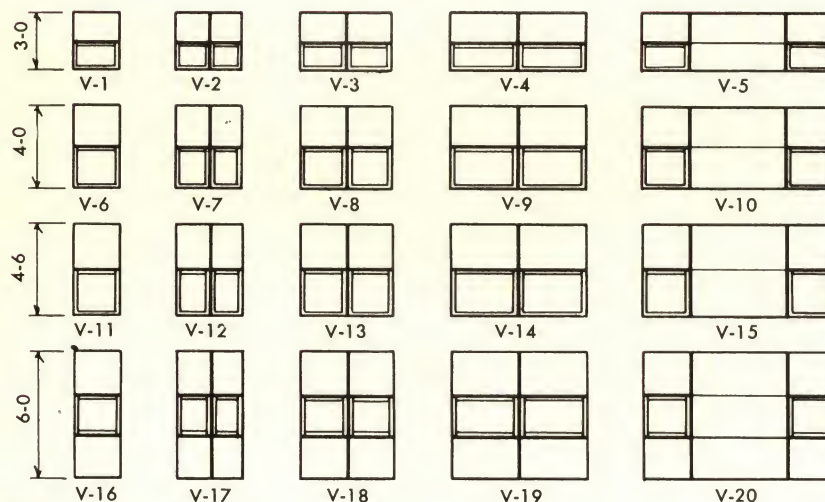
**SCREENS.** Provide a 16 mesh aluminum wire screen in between louver and frame.



## HORIZONTAL



## VERTICAL



SEE PAGE 10 FOR FULL SIZE SECTIONS

SEE PAGE 11 FOR FULL SIZE SECTIONS

## TRIM-SET—STEEL SLIDING WINDOWS

**GENERAL.** Windows shall be Trim-Set Vertical (Horizontal) sliding steel windows as manufactured by Trim-Set Corporation, Seattle, Washington.

**MATERIAL.** The window members shall be formed of low carbon, cold rolled steel.

**CONSTRUCTION.** Frames and ventilators shall be mitered, butt welded with excessive welds removed. When used in frame construction outside trim of the frame shall be an integral part of the frame. The bottom rail of the vertical sliding vent shall have a continuous lift. Sill members shall have drip groove as integral part of frame.

**VENTILATORS.** Ventilators shall be Vertical (Horizontal) sliding type with the lower ventilator moving upward. The sliding mechanism of the ventilators shall consist of four (4) bronze shoes with compression springs held in a housing.

**HARDWARE.** A spring tension locking device shall be provided that will hold the ventilator in various positions when open and lock securely when closed.

**PAINTING.** Windows shall be bonderized after fabrication and receive one coat of gray chromate paint. (Specify additional coats and color of finish baked enamel paint, if desired).

**GLASS.** All windows shall be outside putty glazed at factory with SSB quality glass. (Specify DSB or Obscure where required).

**SCREENS.** Where specified, rewirable metal screens of 16 mesh antique bronze cloth (specify plastic screen if desired) shall be provided. The screens shall be removable from the inside.

## TRIM-SET—ALUMINUM SLIDING WINDOWS

**GENERAL.** Windows shall be Trim-Set Vertical (Horizontal) sliding aluminum windows as manufactured by Trim-Set Corporation, Seattle, Washington.

**MATERIAL.** Window members shall be extruded aluminum section of 63ST5 alloy and temper.

**CONSTRUCTION.** Frames shall be mitered, butt welded with excessive welds removed. When used in frame construction outside trim of the frame shall be an integral part of the frame. Bottom rail of the vertical sliding vent shall have continuous lift. Sill members shall have drip groove as integral part of the frame.

**VENTILATORS.** Ventilators shall be Vertical (Horizontal) sliding type with the lower ventilator moving upward. The sliding mechanism of the ventilators shall consist of four (4) bronze shoes with compression springs held in a housing.

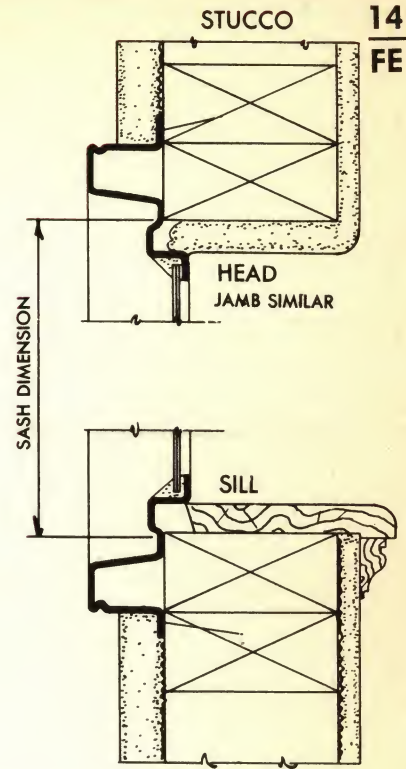
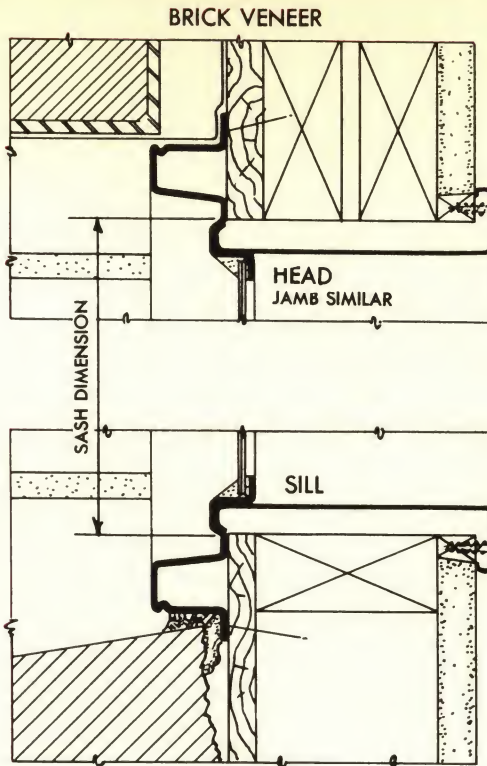
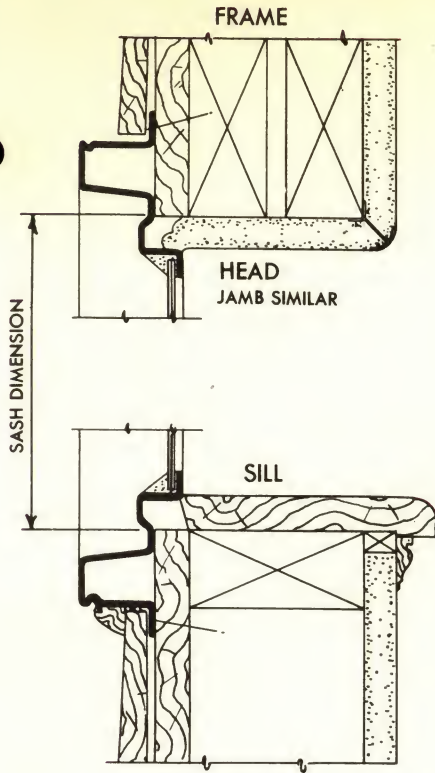
**HARDWARE.** A spring tension locking device shall be provided that will hold the ventilator in various positions when open and lock securely when closed.

**ALUMILITING.** After assembly windows shall receive an Anodic treatment to secure an aluminite finish resistant to corrosion.

**GLASS.** All windows shall be outside putty glazed at factory with SSB quality glass. (Specify DSB or Obscure where required).

**SCREENS.** Shall be rewirable screens 16 mesh aluminum cloth. The screens shall be removable from the inside.



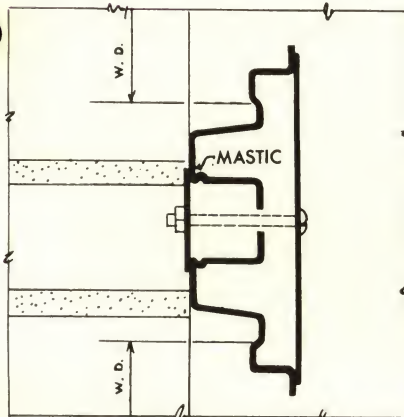


SCALE: 3" = 1'-0"

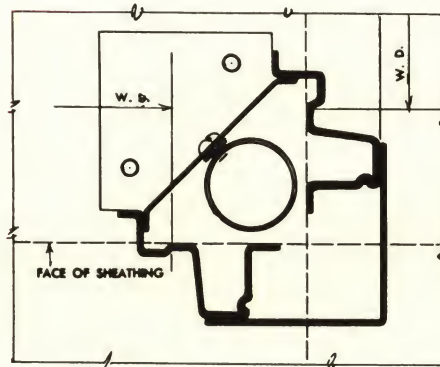
## MULLION DETAILS

SCALE: 3" = 1'-0"

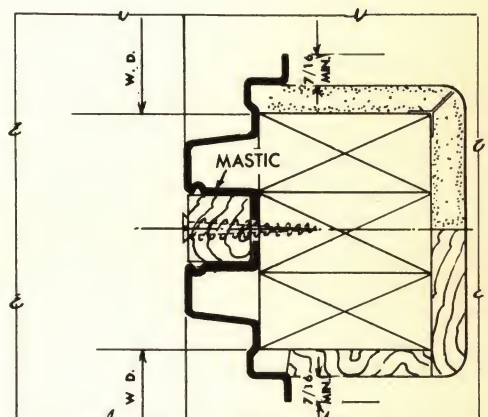
NOTE: WINDOW DIMENSION POINTS APPLY TO STEEL WINDOWS ONLY UNLESS OTHERWISE NOTED.



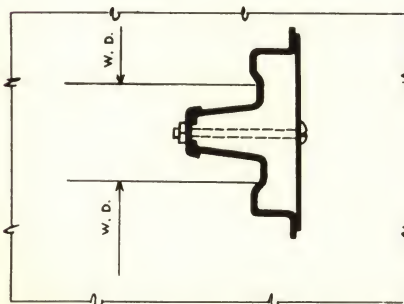
MULLION No. 1 STANDARD



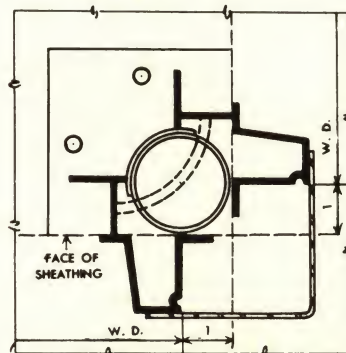
MULLION No. 4  
1 1/2" PIPE COLUMN—90° CORNER



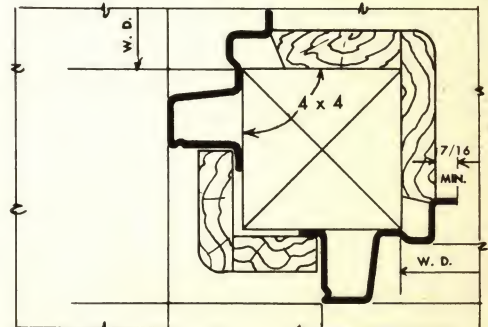
MULLION—WOOD FRAMING



MULLION No. 3—SPECIAL

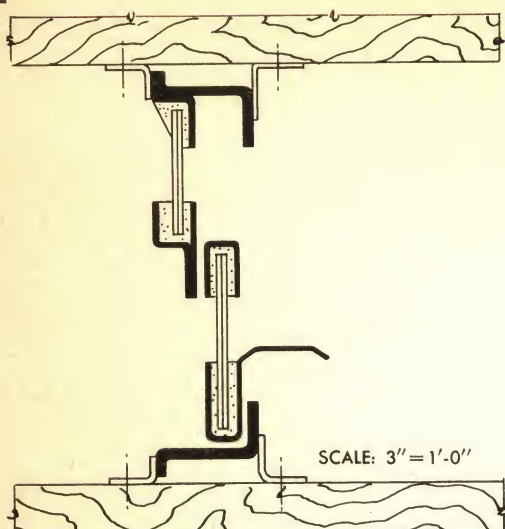


ALUMINUM MULLION ONLY

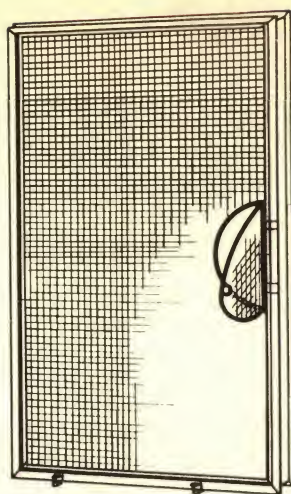


MULLION—WOOD FRAMING  
90° CORNER

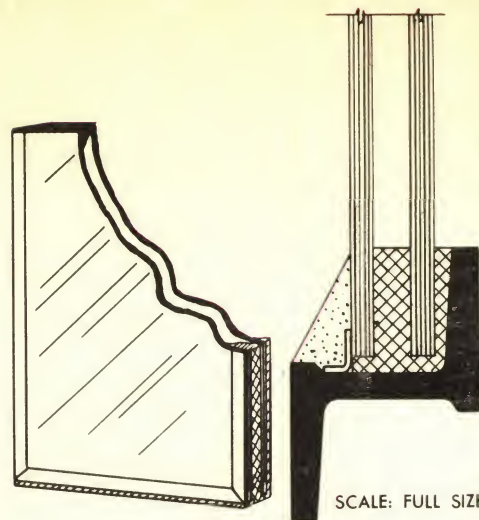


**DESCRIPTION**

Trim-Set Storm windows are available in steel and aluminum in the following types: Vertical, sliding (as shown above) horizontal sliding, wicket type and stationary units. Consult Home Office for specifications.

**DESCRIPTION**

Screens. Metal fly screens are available in steel and aluminum in the following types: Wicket screens, flat screens and hinged screens.

**DESCRIPTION**

All Fentron and Trim-Set windows are available with Duo-Pane insulating glass of clear and obscure lites. Consult Home Office for specifications.

**OTHER PRODUCTS**

**SPECIAL WINDOWS BRONZE, STEEL and ALUMINUM • STORE FRONTS • STORE ENTRANCES • LETTERS • STAIR RAILINGS • MARQUEES • SPANDRELS • VENEER PANELS • STOOLS, SILLS, CASINGS • SERVICE STATIONS • LIGHT STRUCTURAL STEEL and SHEET METAL WORK • GLASS and GLAZING**

Consultation with our Engineering Department is recommended for assistance in the development of special designs of windows, store fronts, etc. Catalogs and detailed drawings for all products—including new store front catalog—are available upon request. NO OBLIGATION, of course.

**DEALERS AND AGENTS****CALIFORNIA:****Los Angeles:**

Fentron Steel Works, Inc.  
Los Angeles Branch  
14122 Aetna St. (Van Nuys)

Lee Miller Company  
715 Redondo Beach Blvd. (Gardena)

**Oakland:**

Trim-Set Industries  
4805 Tidewater Ave.

**Sacramento:**

Pioneer Steel & Supply Co.  
1215 North "B" Street

**Bakersfield:**

G. H. Slack & Son  
1800 South Chester Ave.

**MONTANA:****Butte:**

Archie Adams  
P. O. Box 186

**Great Falls:**

Montana Steel Building  
113 Third Street

**Havre:**

Treasure State Supply Co.  
415 West First Ave.

**OREGON:****Portland:**

Mercer Steel Company, Inc.  
2555 N. W. Nicolai

**WASHINGTON:****Bellingham:**

Bellingham Builders Supply Co.  
"C" and Chestnut St.

**Everett:**

Associated Sand & Gravel  
2506 Colby

**Olympia:**

Graystone Materials Co.  
Foot of North Washington St.

**Port Angeles:**

Nailor Lumber Company,  
118 East 8th St.

**Spokane:**

Elmo E. Tiefel  
1315 W. Cleveland  
Spokane Hardware Supply  
North 1306 Howard St.

**Tacoma:**

C. S. Barlow & Sons  
1715 Dock St.

**Walla Walla:**

Williams Lumber Company  
College Place

**Wenatchee:**

Wells & Wade  
Wenatchee

**Yakima:**

Yakima Hardware Co.  
P. O. Box 17

**BRITISH COLUMBIA:****Vancouver:**

Consolidated Agencies, Ltd.  
Granville Island

**HAWAII:****Honolulu:**

Hawaii Pacific Traders  
P. O. Box 1794

**PHILIPPINE ISLANDS:****Manila:**

Amon Trading Corporation  
P. O. Box 1151



**Fentron**

**Trim-Set**

**FENTRON STEEL WORKS INC.  
TRIM-SET CORPORATION**